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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,201

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Wei Huang

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EXAMINER

YOON, TAE H

ART UNIT

PAPER NUMBER

1796

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,201	Applicant(s) HUANG ET AL.	
	Examiner Tae H. Yoon	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 December 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 18-22,24-27,30-36,41,42,47-49,51,56,76 and 77 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 18-22,24-27,30-36,41,42,47-49,51-56,76 and 77 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Applicant asserts that the examiner does not reject claims 26, 27, 30-35 and 53-56 in the office action (under the prior art). Applicant requests that the examiner reissue the office action stating that those claims are allowable. However, said claims are rejected under 112, 2nd PP rejection contrary to applicant's assertion. Note that claims dependent on the claim which is subject to 112, 2nd PP rejection are also rejected even though said claims are free of any issue under 112, 2nd PP. Thus, any amendment to the claims overcoming said 112, 2nd PP rejection would be allowable obviously when there is no prior art rejection with respect to said claims.

Claim 36 is an improper amendment since the deleted section with respect to the mixture of solvents is missing.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 19-22, 24, 25, 41, 42, 51, 52, 76 and 77 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The dependent claims recite "consisting of" which is a closed term which does not allow any additional component, but above claims recite an open term, "comprises" and "includes" which permits additional components. Applicant asserts that said "comprises" defines the subset of the solvent system or the structural constituent, but the examiner disagrees with applicant for following reason: Said "comprises" should be "is" when the subset is further defined. For example, said "comprises" in "the solvent

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system comprising” would permits other components such as dispersant and thus would improperly broadens scope of “consisting of”. Independent claims with “consisting of” should be definite by themselves, but the dependent claims with “comprising” opens a door for possible additional components. Thus, metes and bounds of claims are unclear and confusing and claims are indefinite.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 18-21, 24-27, 30-36, 41, 42, 47-49, 51-55, 76 and 77 are rejected under 35 U.S.C. 103(a) as obvious over Drage (US 5,858,547).

Drage teaches a solution of a composition consisting of a cresylic novolac polymer (which would encompass o-cresol novolac polymer), fluoroaliphatic polymeric ester surfactant, n-butyl alcohol and 1-methoxy-2-propanol and a coated article (wafer) thereof in example 1. Example 3 and 5 teach a phenolic novolac resin. See *In re Mills*, 477 F2d 649, 176 USPQ 196 (CCPA 1972); Reference must be considered for all that is disclosed and must not be limited to preferred embodiments or working examples.

Said solution inherently lowers the recited apparent viscosity since the same or similar components are used. Integrated circuit structure taught at col. 3, lines 26-27

has a multi-layered structure and thus would meet the instantly recited additional layer as well as substrate absent further limitation.

The instant invention further recites a mixture of o-cresol based resin and a resol phenolic resin and a particular mixture of solvents over Drage. However, Drage teaches employing blends derived from varying combinations of phenol and o-, p- and m-cresol at col. 4, lines 17-19. Novolac polymers derived from the reaction of phenols or o-, p- and m-cresol with formaldehyde (col. 3, line 46-49). Thus, a blend obtained from a mixture of phenol and o-cresol with formaldehyde would be a mixture of a resol phenolic resin (phenol with formaldehyde) and o-cresol based novolac resin (o-cresol with formaldehyde). A mixture of cresylic novolac polymer of the example 1 and phenolic novolac resin of the example 3 would meet the instant resin mixture also. Furthermore, the recited "comprises" in claim 19 (which has a narrower scope than that of claim 18) permits the presence of other form of novolac and resol phenolic resins. Drage also teaches various solvents such as n-propanol (isopropyl alcohol) and propylene glycol monoethyl ether acetate and a mixture thereof at col. 5, lines 4-25, and thus choosing a mixture of said n-propanol (isopropyl alcohol) and ether acetate would be a *prima facie* obviousness, especially since the examples use a mixture of solvents.

Thus, it would have been obvious to one skilled in the art at the time of invention to utilize a mixture of cresylic novolac polymer (which would encompass o-cresol novolac polymer) of the example 1 and phenolic novolac resin of the example 3 in Drage since Drage teaches such modification, use of blends, and further to utilize a mixture of said n-propanol (isopropyl alcohol) and ether acetate as solvents thereof

since Drage also teaches various solvents such as n-propanol (isopropyl alcohol) and ether acetate and a mixture thereof and since the examples use a mixture of solvents absent showing otherwise.

Claims 18-22, 24-27, 30-36, 41, 42, 47-49, 51-55, 76 and 77 are rejected under 35 U.S.C. 103(a) as obvious over Drage (US 5,858,547).in view of Hattori (US 6,165,676).

Hattori teaches novolac compositions and is cited to show the solvent of claim 22. *See Ormco vs. Align, 498 F3d, 1307, 1319-20 (Fed. Cir. 2007)* (explaining that when dependent claims “were found to have been obvious, the broader claims ... must also have been obvious).

The instant claim 22 recites propylene glycol (mono)methyl ether acetate over propylene glycol monoethyl ether acetate of Drage. However, Hattori teaches a mixture of solvents A and B for novolac polymers at col. 4, lines 11-67. One of the solvent A comprises isopropyl alcohol (2-propanol, line 14) and one of the solvent B comprises propylene glycol monomethylether acetate, (PGMEA, lines 48-49).

Thus, it would have been obvious to one skilled in the art at the time of invention to utilize a mixed solvent of isopropyl alcohol (2-propanol) and propylene glycol monomethylether acetate of Hattori with the mixture of cresylic novolac polymer (which would encompass o-cresol novolac polymer) of the example 1 and phenolic novolac resin of the example 3 in Drage since Drage teaches the utilization of a mixed solvents and since propylene glycol (mono)methyl ether acetate which is a homologue of

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propylene glycol monoethyl ether acetate of Drage is expected to work in same manner absent showing otherwise.

Claims 18-21, 24-27, 30-36, 41, 42, 47-49, 51-56, 76 and 77 are rejected under 35 U.S.C. 103(a) as obvious over Drage (US 5,858,547) in view of McCutcheon et al (US 2007/0105384 A1) or Patil et al (US 2003/0207209 A1).

McCutcheon et al and Patil et al are cited to show the claim 56. *See Ormco vs. Align, 498 F3d, 1307, 1319-20 (Fed. Cir. 2007)* (explaining that when dependent claims “were found to have been obvious, the broader claims ... must also have been obvious).

The instant invention further recites UV curing over Drage.

McCutcheon et al teach UV curing in example 1. Patil et al teach use of radiation source in [0044].

It would have been obvious to one skilled in the art at the time of invention to further employ UV source of McCutcheon et al or UV or visible light of Patil et al in Drage since the use of any heat source in curing or drying novolac resin would be an obvious design choice and since UV light is one of well known method as taught by McCutcheon et al and Patil et al absent showing otherwise.

Claims 18-22, 24, 25, 36, 41, 42, 47-49, 51, 52, 76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR 281602 in view of Hattori (US 6,165,676) and further in view of Miyamoto et al (US 6,808,857).

Rejection is maintained for reason of record with following response.

The examiner did not state that the catalyst is not needed contrary to applicant's assertion. The examiner stated that one part contains resol-based resin and another part contains a catalyst. FR further teaches employing a combination of a surfactant and novolac resin in a form of a dispersion in the resin or catalyst component. Thus, an addition of said dispersion containing a combination of a surfactant and novolac resin in said resol-based resin part would be a *prima facie* obviousness since there are only two options, in the resin or catalyst component. Thus, said one part consisting of a resol-based resin, a combination of a surfactant and novolac resin in a form of a dispersion in the resin would meet the invention, and the solvent system is taught by Hattori and Miyamoto et al. In another word, a two-component composition comprising a component A (resin dispersion containing a surfactant and the instant composition) and component B (catalyst) is known or obvious and the instant composition (component A) would be obvious. Said catalyst would be needed only when the composition is in use which is not claimed invention here.

The instant invention further recites a solvent system comprising at least one alcohol and at least one ether acetate-based solvent and hydrocarbon and fluorocarbon surfactants over FR. However, said dispersion would contain solvent(s) inherently as taught by Miyamoto et al (coll. 8, lines 53-55). Hattori teaches a mixture of solvents A and B for novolac polymers at col. 4, lines 11-67. One of the solvent A comprises isopropyl alcohol (2-propanol, line 14) and one of the solvent B comprises propylene glycol monomethylether acetate, (PGMEA, lines 48-49). Hattori also teaches various surfactants at cols. 29 and 30.

Thus, it would have been obvious to one skilled in the art at the time of invention to utilize a mixed solvent of isopropyl alcohol (2-propanol) and propylene glycol monomethylether acetate of Hattori in the resol-based resin part containing a combination of a surfactant and novolac resin of FR in order to obtain a dispersion since utilization of a mixed solvents is well known in the art and since FR teaches dispersion which would inherently contain solvent(s) as taught by Miyamoto et al absent showing otherwise.

Claims 18-21, 24, 25, 36, 41, 42, 47-49, 51, 52, 76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over FR 281602 in view of Drage (US 5,858,547) and further in view of Miyamoto et al (US 6,808,857).

Rejection is maintained for reason of record with above response.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tae H. Yoon whose telephone number is (571) 272-1128. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tae H Yoon/
Primary Examiner
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THY/January 20, 2010